

Size Reduction Machines



Top Performance



Technology from **PALLMANN**



An ISO 9001-2015 Company



Deepak Asrani
Chief Innovator

Be in control of your larger business destiny, by being in control of even the most minuscule part of your quality control process and product quality. May quality facilitate your success.



solutions for size reduction and processing techniques

Content

| | |
|--|----|
| About Us... | 04 |
| Pulverizing System - An Overview | 07 |
| Pulverizing Solutions for Masterbatch & Compounding Applications | 09 |
| Quality Powders for Rotational Moulding | 12 |
| Solutions for Pipe & Profile Grinding & Pulverizing | 16 |
| Pallmann Low Speed Granulators | 22 |
| Solution for Rubber Grinding & Pulverization | 24 |
| Pulverization through Cryogenic Process | 26 |
| Precision Grinding of Cellulose Sheets & Linters | 28 |



Manufacturing Facility





About Us...

7 generations of proven solutions

PALLMANN group flagged off its journey in the year 1903 starting out as flour millers & mill designers. After an impressive start and with a pursuit for advancement, company, expanding its capacity gradually ventured in to plastic industry with specializing in size reduction and preparation techniques. And today PALLMANN has a worldwide reputation in being the specialist for plastic pulverizing.

With the team of more than 700 people worldwide, the most advanced and latest technologies and thrust on constant research and innovation, PALLMANN has registered an astounding success around the world.

Supported by in-time and focused customer-service and an eye for innovation and quality, PALLMANN has set vision on the horizon...meaning excellence that's never ending!



Where spirit of innovation runs deep

Deepak Poly Plast Pvt. Ltd. The company founded and formed by the mission and vision of Mr. Deepak Asrani to take technological excellence to a new high, never looked back ever since. Engaged in designing and manufacturing of testing equipments for plastic & rubber, the company is surging ahead adding new innovations and new achievements under its belt. Deepak Polyplast holds very respected and esteemed position with its 'value for money' quality solutions. At the core of which lies deep rooted commitment to training, learning and inquisitiveness which leads the company to explore unknown territories of industry and coming out with unexpected solutions.

...When experience and expertise join hands...it writes a new chapter of EXCELLENCE called PD Polygrinders!

Where excellence rules...

When two renowned industry players join hands to create a history in the industry it was the birth of PD Polygrinder – the company born by the ideal marriage of the two very known and well established companies in their field. Deepak Polyplast – an established name for its plastic and rubber testing and PALLMANN – a German giant having reputation of being masters in size reduction/ Pulverizing technology. Together as PD Polygrinders with combined strength of experience and expertise, the company is ready to gain heights in the field of plastic pulverizing.



Multiple Technologies... aimed at Meticulous Performance

PD Polygrinders offers manifold pulverizing solutions for different industry needs, each assuring top performance and total quality control. Systems built with highest technological standards ensure highest accuracy in the process.

Catering to different pulverizing needs, Pulverizing systems promises timely solutions that too with utmost precision.



Pulverizing System - An Overview System Set-up

PD Polygrinders pulverizing systems for plastic and rubber operate on a special processing principle. Granulated feed material is fed into the mill by means of suitable dosing systems. A suction system optimally designed for this application draws the ground material out of the mill. Different screening systems are used to achieve the desired powder qualities. Coarse material from the screen is reintroduced into the mill via a closed-loop system. The finished product is weighed in bags, filled into containers or conveyed to downstream processes and silo systems, depending on the requirements. Standard systems for installation on the production floor are available. An individual installation in multi-story buildings is possible at any time depending on the local conditions.

Customized Installations

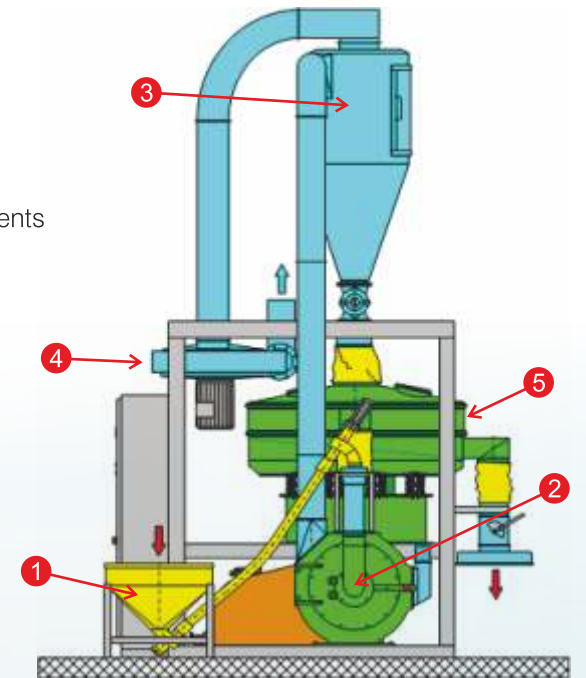
The proven success of custom-made PD Polygrinders installation is primarily due to technical competence, intensive developmental work and close cooperation with our clients.

Pulverizer System

Constructive and Process-Technological Characteristics

- Grinding path made of wear-resistant, technological optimized key segments
- Exact, central grinding gap adjustment
- Housing design for optimized air cooling
- Broad application field
- Economical and cost effective
- Low specific power consumption
- Powder quality according to specification

1. **Feeding System** - With automatic regulation.
2. **Mill** - Type PMMI/PKMI.
3. **Piping & Cyclone** - Transport of the powder.
4. **Fan** - Transport & cooling of the powder.
5. **Screening Machine** - With automatic return of the coarse particles to the mill.



Meticulous Technologies... promising utmost quality at every step

Ever since the inception, PD Polygrinders is charting the ladder of success in the industry and has become one of the most sought after solution provider in a very short span. The credit for which goes to its trend-setting technology offering ingenious solutions. To stay ahead and to set a benchmark of excellence, one needs to employ latest and the most modern technology. At PD Polygrinders, the company makes it a point to stay advanced with its cutting-edge technologies. To answer the steadily increasing demand for plastic powders and rubber powders of any kind as well as constantly bettering quality requirements, the company offers complete system under one roof.

Under the aegis of PD Polygrinders one can find the solutions for most critical pulverizing requirements.

PD Polygrinder PKM

Different pulverizing systems are used for different materials and applications. The PD Poly Grinder type PKM covers the broadest material spectrum due to the large variety of different key segments available.


Constructive and process-technological characteristics are...

- Grinding path made of wear-resistant, technological optimized key segments
- Exact, central grinding gap adjustment
- Housing design for optimized air cooling
- Broad application field
- Economical and cost effective
- Low specific power consumption
- Powder quality according to specification

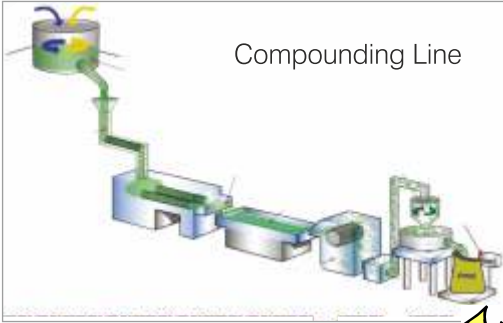


**PULVERIZING
SOLUTIONS FOR
MASTERBATCH &
COMPOUNDING
APPLICATIONS**


Application of Pulverization
In Masterbatch and Compounding Industry



Pulverizing of virgin pellets



Compounding Line



Pulverizing of Compounded pellets



PKMI-300
(Structure Model)



PKMI-300
(Floor Model)

| Masterbatch based on: | Main Application | | | | | | | |
|-----------------------|-------------------|--------------|------|------|-------|-----------------|---------------|---|
| | Injection molding | Blow molding | Film | Tape | Fibre | Extrusion Sheet | Extruded Foam | |
| PE | X | X | X | X | X | X | X | X |
| PP | X | X | X | X | X | X | X | X |
| PS | X | | | | | X | X | |
| ABS | X | | | | | | X | |
| SAN | X | | | | | | | |
| PA | X | | X | | | X | X | |
| PC | X | | | | | | X | |
| PET | X | X | | | | | X | |
| PMMA | X | | | | | | X | |

USP of Pulverizer in Masterbatch & Compounding Application

Typical Masterbatch Pulverizers such as PKMI 300, 500, 800 :

- Standard Pulverizer without screening
- Typical fineness for Masterbatch: 800-1000 μ m
- The best powder quality and shape can be achieved without screening machine
- This Pulverizer is able to pulverize temperature sensitive materials (without nitrogen)
- Very compact installation design
- Shortest distance from mill to bagging
- Smooth interior of the mill housing (No dead corner, easy & quick cleaning)
- High throughput
- Competitors propose machines for PE pulverizing, but they have no satisfactory solution for PP, PA, EVA, SAN, etc.



PKMI-300
(Table Model)

Technical Data

| Sr. No. | Model | Main Motor | Total Connected Load (kW) | Rotor Diameter (mm) | Screen | Output Range (Kg/Hr)* |
|---------|----------|------------|---------------------------|---------------------|-----------------|-----------------------|
| 1 | PKMI 300 | 22 | 27 | 300 | N.A. / Optional | 50 - 220 |
| 2 | PKMI 500 | 37 | 44 | 500 | N.A. / Optional | 80 - 300 |
| 3 | PKMI 500 | 55 | 62 | 500 | N.A. / Optional | 80 - 500 |
| 4 | PKMI 800 | 75 - 132 | 90 - 160 | 800 | N.A. / Optional | 150 - 1000 |

*Output depends upon material Make, Grade and MFI value. Such Wide Range in output is because the machine can pulverize lot of materials.



QUALITY
POWDERS FOR
ROTATIONAL
MOULDING

Rotomoulding Application

Economical pulverizing with PolyGrinder type PKMI for the Rotation Moulding industry

Rotational moulders need a high quality powder with:

- Controlled fineness - between 150 and 500 μm . (100 and 35 mesh)
- Good flowability – within 24-30 seconds.
- High bulk density – over 350 g/l.

Powder quality defined under DIN 53492 and ASTM 1895



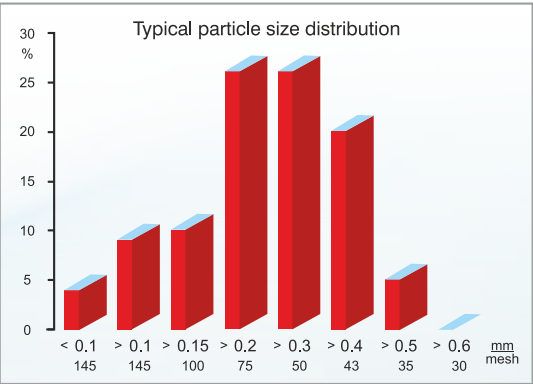
PKMI-300S

Controlled fineness -

between 150 and 500 μm . (100 and 35 mesh)

Measured on different screen meshes

- Uniform material distribution.
- Short cycle times (heating and cooling phases).
- Low dust contamination when pouring the powder.
- Smooth surfaces of the produced items.



Good flowability – within 24-30 seconds.

Flowability is the time a defined powder quantity needs to flow through a defined cone.

- Optimum distribution even in complex moulds.
- Uniform wall thickness of the produced items.
- Quick and easy filling of the moulds.



PKMI-500S

High bulk density – over 350 g/l.

Bulk density is a measure of the weight per unit volume (g/l)

- Result of a quality powder with round shape.
- Material and weight saving.
- Better and easier to dose



Powder with round shape • High bulk density



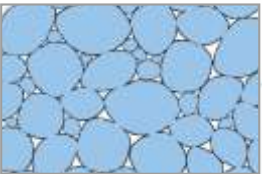
Non homogeneous powder with tails • Low bulk density



High quality powder with PolyGrinder

- Good particle size distribution
- Good particle shape
- Good bulk density

High quality powder with round shape. Typical for PolyGrinder type PMMI/PKMI

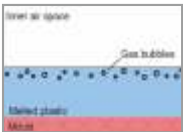


High quality powder to avoid pin-holes

- Reduction of the number and size of bubbles and pin-holes
- Better Wall-density and surface quality



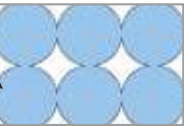
Typical PolyGrinder powder



Pin-holes



Non homogeneous powder with tails



Mikropellets

Pockets of gas

Rotomoulding



Quality powders for Rotational Moulding with PALLMANN Pulverizers

Technical Data

| Sr. No. | Model | Main Motor | Total Connected Load (kW) | Rotor Diameter (mm) | Screen | Output Range (Kg/Hr)* |
|---------|----------|------------|---------------------------|---------------------|---------|-----------------------|
| 1 | PKMI 300 | 30 | 39 | 300 | 20 Mesh | 120 - 175 |
| 2 | PKMI 500 | 37 | 47 | 500 | 20 Mesh | 200 - 300 |
| 3 | PKMI 500 | 55 | 65 | 500 | 20 Mesh | 350 - 400 |
| 4 | PKMI 800 | 75 - 132 | 105 - 175 | 800 | 20 Mesh | 500 - 900 |

*Output depends upon material Make, Grade and MFI value.

SOLUTIONS FOR PIPE & PROFILE GRINDING & PULVERIZING



Your Experienced Partner for Size Reduction and Processing Techniques Economical Solutions for the PVC Pipe & Profile Industry



Pipe Crusher for size reduction of PVC pipes, with long chute for feeding from the top.



PALLMANN
Pulverizing
Installation for
economical
pulverizing of
PVC pipe
granules



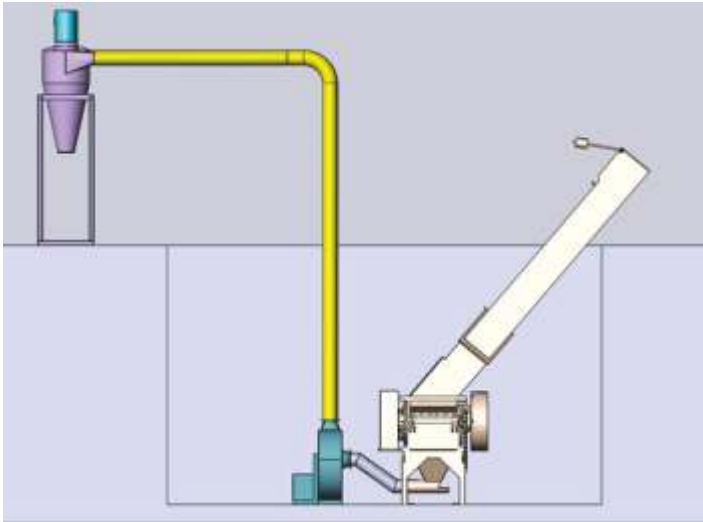
Due to their grain size distribution, excellent flow characteristics and high bulk densities, such high-quality powders are preferably used in extrusion lines.

Pipe Granulator - An Overview

Application
For the size reduction of Rigid PVC pipes and profiles

Features
The Knife Mill is of strong steel welded construction. The machine housing consists of a lower and an upper part, which is hinged and can be opened by means of a rack-jack. This guarantees an easy screen change, a quick change of the rotor knives and an intensive cleaning in a very short time. The stator and rotor knives can be adjusted outside of the machine in a jig which belongs to our supply.

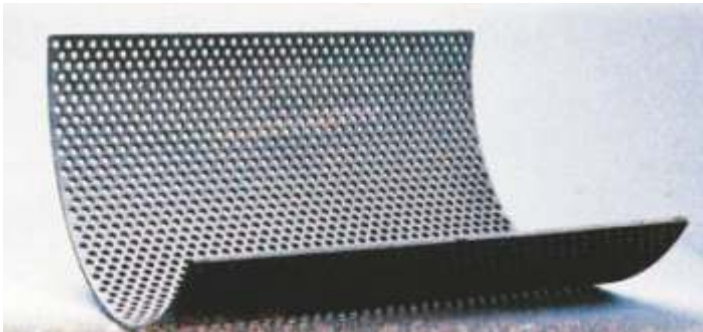
Sound insulation
An effective sound insulation can be achieved by installing the machine in a pit with sound insulated cover.



Pit Installation of Knife Mill



PVC Grinding



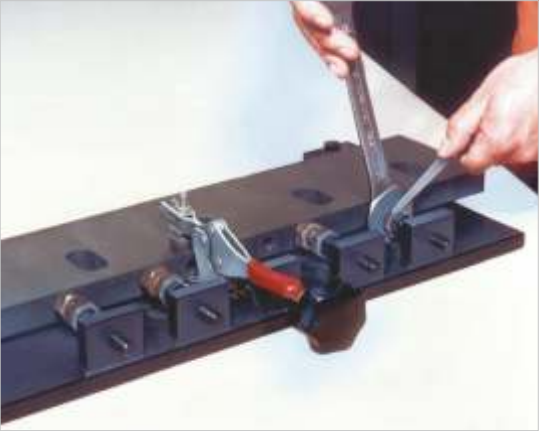
Screen / Sieve

Knife-Setting is Essential

In Granulators size reduction is effected between rotation and stationary knives. The more precise the cutting gap between the knives is adjusted, the higher the product quality and the lower the operating cost.

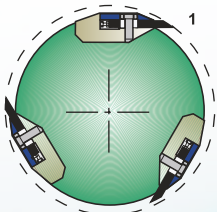
PALLMANN Granulators always offer the advantage of rotor and stationary knives being precisely set in a fixture outside of the machine while a second set of knives is installed and operating in the machine. The downtime of the machine for knife changing is therefore reduced to the time required for removal of dull knives and installation of sharp knives only. There is no setting or adjustment work to be done inside of the machine.

The technique of quick and efficient knife setting is another typical PALLMANN achievement.

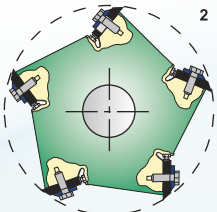


Technical Data

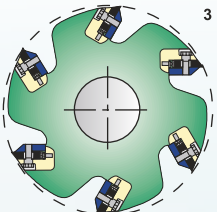
| | | | | |
|-------------------|------|-------------|-------------|-------------|
| Chamber Dimension | mm | 400x500 | 400x700 | 500x700 |
| Rotor (Dia.) | mm | 400 | 400 | 500 |
| Rotor (Length) | mm | 500 | 700 | 700 |
| Rotor type | | Slant/Clawe | Slant/Clawe | Slant/Clawe |
| Motor | kw | 30/37/45 | 30/37/45 | 30/37/45 |
| Throughput rate | kg/h | 250-500 | 300-600 | 300-800 |



Guillotine Rotor



Slant-Cut Rotor



Clawe - Type Motor

Decisive Advantages

- Feed chute for 3 m long pipes, 400 mm dia. max.
- Standard length 6 m pipes have to be cut in half only once
- Split machine housing allows good access to the grinding chamber for easy cleaning
- Steel fabricated design, rugged and reliable
- Rotor and stator knives set in a jig - No knife adjustment inside the machine
- Screen is only clamped into the lower machine housing - no fixing bolts
- Installation in a pit for easy feeding and good sound insulation
- Optimum granule quality for further pulverizing in PMMI / PKMI mills
- Short delivery time and very competitive price



Technical Data

| Sr. No. | Model | Main Motor | Total Connected Load (kW) | Rotor Diameter (mm) | Screen | Output Range (Kg/Hr)* |
|---------|----------|------------|---------------------------|---------------------|---------|-----------------------|
| 1 | PKMI 300 | 22 | 27 | 300 | 18 Mesh | 100 - 150 |
| 2 | PKMI 500 | 37 | 47 | 500 | 18 Mesh | 160 - 250 |
| 3 | PKMI 500 | 55 | 65 | 500 | 18 Mesh | 300 - 400 |
| 4 | PKMI 800 | 75 - 132 | 105 - 175 | 800 | 18 Mesh | 500 - 850 |

*Output depends upon material Cleanliness, Type, Filler Content & Size (5-8mm).

Pulverizing Systems for Pipe and Profile Scrap

Granulated production waste from PVC-pipe and profile manufacturing is pulverized, worldwide, with PALLMANN pulverizing systems with Disc Mill. These recycled powders are mixed with new PVC-material and are reentered into pipe and profile extrusion. The pulverizing systems are available with or without screening in order to meet the customers' demands for fineness.



PKMI-300S



PKMI-500S

Decisive Advantages

- Fully-automatic temperature and load-controlled system
- No Requirement of Water or Air Cooling System
- High throughput rate at low specific power consumption
- Easy access for maintenance and wear part exchange
- Compact construction with minimum space requirement
- Economical and cost effective



PALLMANN LOW SPEED GRANULATORS

A Precise Solution for Granulating Injection Moulding Wastes

Regaining the process waste is a very important part of injection moulding industry. But regaining / reclamation is not just any other process, the more precise reclaiming process would be, aids in improving the quality of the reclaimed material (scrap) and lessens the hassles of its reuse in further process.



| MODEL | PGL - 01 | PGL - 02 | PGL - 03 |
|------------------------------|------------------|------------------|-------------------|
| Output | 6 kg/hr (6 mm) | 10 kg/hr (6 mm) | 17 kg/hr (6 mm) |
| Geared Motor | 1 HP / 0.75 kW | 2 HP / 1.5 kW | 3 HP / 2.2 kW |
| Speed (RPM) | 25 - 29 | 25 - 29 | 25 - 29 |
| Cutting Chamber size in mm | 250 x 250 | 250 x 250 | 300 x 350 |
| Working Width size in mm | 240 x 350 | 240 x 350 | 300 x 472 |
| No. of Cutters | 2 | 2 | 3 |
| No. of Rollers with Teeth | 3 | 3 | 4 |
| Dimensions in mm (W x L x H) | 380 x 918 x 1200 | 380 x 918 x 1200 | 860 x 1270 x 1470 |
| Electrical | 415 V / 50 Hz | 415 V / 50 Hz | 415 V / 50 Hz |
| Weight kg | 210 | 220 | 370 |



Unique Features

The Slow Speed and Screen less operation provide low noise level and low dust level even with the most filled and brittle materials.

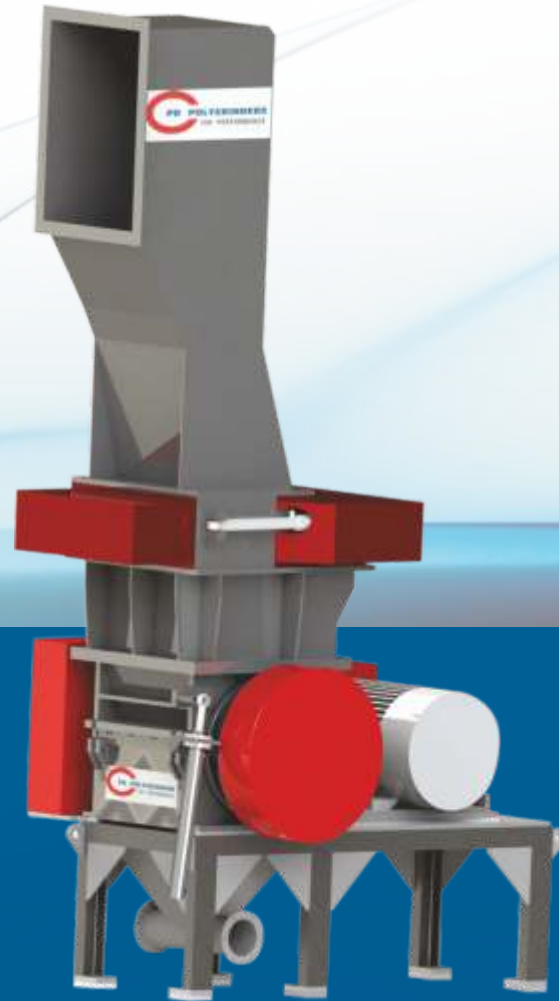
Cutting Chamber components are specially coated for wear resistance

Rapid cleaning and maintenance.

Regrind the parts / sprue without destroying the molecule structure of the thermoplastics

Low power consumption.

SOLUTION FOR RUBBER GRINDING & PULVERIZATION



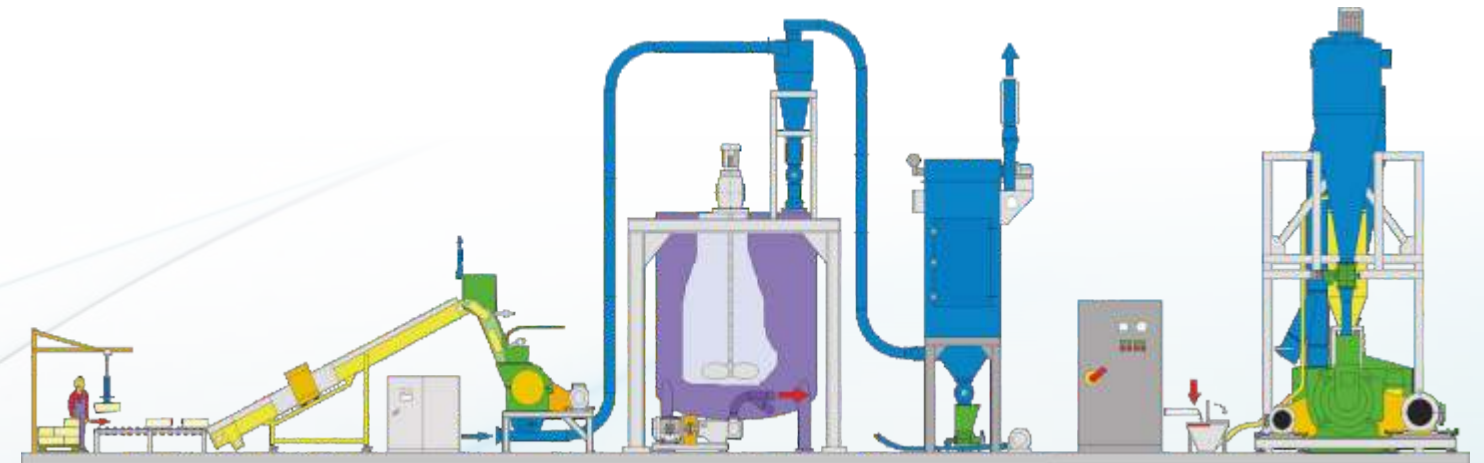
Application

For the size reduction of rubber bales whether natural or synthetic, special guillotine rotor is designed, without a traversing shaft and high – momentum flywheel. In addition to it, a specially designed infeed chute, equipped with a bale cutter, is also critical to guide the material towards the cutting chamber ensuring optimum feeding.

Method of Operation

Size reduction from a standard size bale to a particle size smaller than 10mm, can often be accomplished in single step with materials like, NBR, SBR and EPDM. The Rubber Bales are fed either by hand or through conveyor belt into the cutting chamber and directly granulated to desired size. Particle size is determined by the screen size, which is usually has 10mm holes. The ground material is thereafter pneumatically conveyed to the bagging station.

The special infeed chute is equipped with 'bale cutting attachment' and patented shuttle flaps to guide the optimum and dosed material intake.



Schematic Layout

PULVERIZATION THROUGH CRYOGENIC PROCESS



Area of Application

Cryogenic Pulverization System, incorporating the different designs of mills, produces High Quality Powders from extremely Heat Sensitive Material and Elastomers.

Pulverizing occurs at Low Temperature (-70°C to -150°C) and High Impact Speed. Material is cut after making it brittle, producing quite fine powder which ensures optimum Flowability and high bulk density.

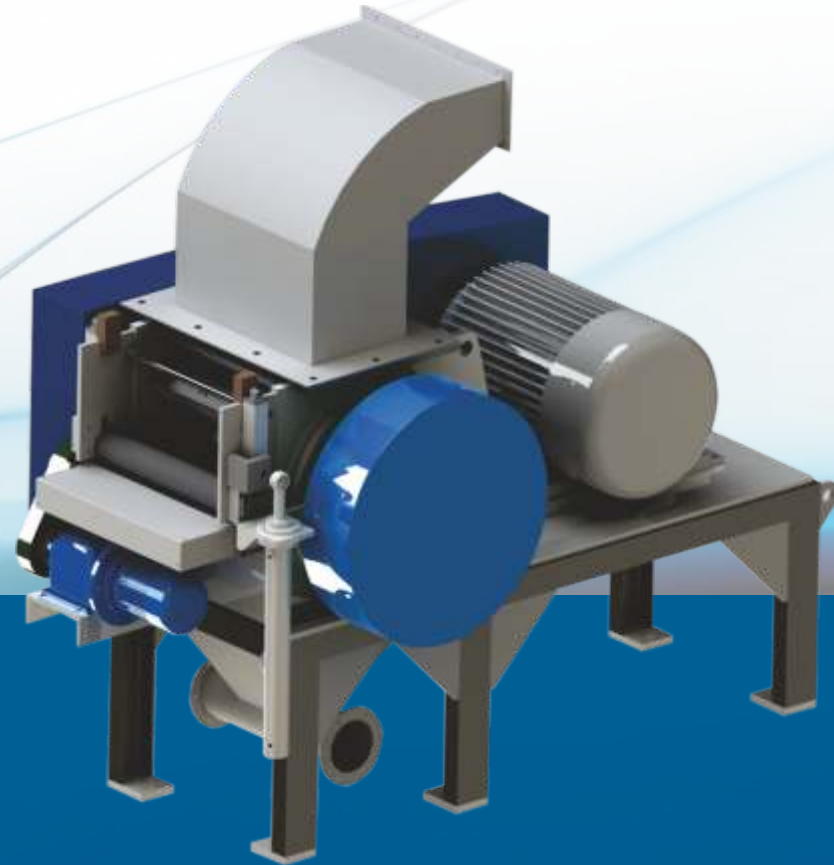
Method of Operation

Material is dosed through a cooling screw conveyor and embrittled with the help of Liquid Nitrogen. Size is reduced in the cutting chamber or Mill. Embrittled material and Mill Grinding produces fine powder. Then the pulverized material is pneumatically conveyed to screen through cyclone and desired particle size is achieved.



Feeding Screw

PRECISION GRINDING_{OF} CELLULOSE SHEETS & LINTERS



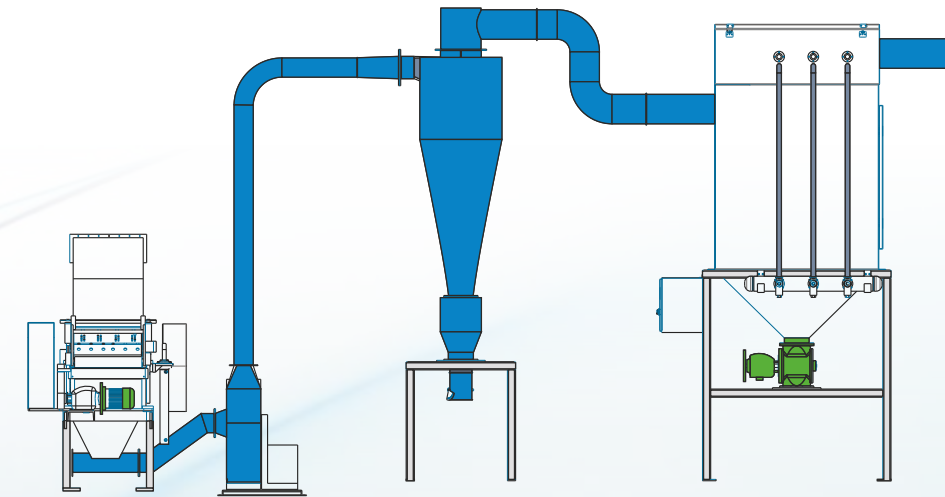
Method of Operation

Rolls, sheets and strips are transported into the cutting chamber by means of profiled draw-in rollers. Precut material is fed via a feed chute. Size reduction to the desired end size is performed between the stator- and rotor knives in the housing. The end fineness is determined among others by the speed of the rotor and the type of screen insert. High-speed models with special rotors and screens are used for continuous pulverization of sheet- and roll cellulose.



Advantages & Features

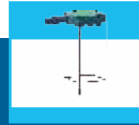
- Production of fine powders with a smooth surface and high viscosity
- Uniform end product with high bulk density
- Best flowability
- Cool grinding operation and optimum cool air conduction due to especially designed open rotor construction
- Fast and thorough cleaning due to easy access into the cutting chamber
- Easy screen and knife changing due to maintenance-friendly construction
- High economic efficiency and high throughput rate



Schematic Layout

NEW PLANT





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